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W. H. HODGE

PERU'S TRADITIONAL BEAST OF BURDEN, THE LLAMA, HITS THE TRAIL WITH A LOAD OF SUGAR

Long of nose and neck and as supercilious of expression as his cousin camel, the llama appears on Peru's coat of arms, coins, and stamps, as well as on its rugged mountain trails (page 5).

India's Travancore Has Atomic Material

THE MAHARAJA of Travancore, reported opposed to international control of his country's radioactive thorium, rules an Indian state of unusual customs and advanced industrial development.

The name Travancore is translated as "the place of the Goddess of Prosperity," an appropriate description for the comparatively well-favored state. The term goddess is especially pertinent because of women's favored position there.

Maharaja Has Many Titles

Women are the heirs of property and the guardians of the family pocketbook. They vote, hold office, and serve as teachers, lawyers, and doctors. Government is a semi-matriarchy. Although the official heads of state are men, succession always is through the female line. Thus the inheritance is not passed down from father to son, but "sideways" to nephews.

The present maharaja, member of an ancient Hindu dynasty, is well endowed with titles, including Sultan, Maharaja, Raja, and a three-word combination meaning "invincible sword in war." His subjects number more than 6,000,000. His domain at India's southern point is a fertile and highly cultivated land a little smaller than Massachusetts.

The state includes Cape Comorin, southernmost tip of the Indian peninsula, and extends along the southwest coast more than 150 miles. This shore, and its extension northward, is called the Malabar Coast (illustration, page 4). Travancore is one of the Madras States, a group of independent princedoms edged by Great Britain's Madras Province. Cochin, Tangasseri, and Anjengo, ports along Travancore's coast, belong to Great Britain. Other ports, including Trivandrum, the capital, are part of the state.

Travancore produces a tropical profusion of coconuts, rice, tea, pepper, rubber, and other supplies. Fishing is good in the "captive seas," a string of inland lagoons pictured by prewar visitors as gleaming romantically by moonlight and burning under the hot midday sun. Teakwood, ebony, and sandalwood are among resources of the highlands back of the coastal plains. Big game abounds.

Beaches Are Not for Bathing

The chief natural wealth of Travancore now attracting world attention, however, is mineral. The shore line of this state holds the richest known deposits of monazite sand, from which comes the uranium-related element, thorium. An important basic source of atomic power, thorium also has more prosaic uses in radio tubes and tungsten-lamp filaments, gas-lamp mantles, and luminous watch dials.

A mineral also found in Travancore's "black sand" beaches is titanium, long valuable in the making of special paints and for other commercial uses. The Indian state has a virtual monopoly of titanium. The ore is often "mined" by sailors who beach small boats, fill them with sand, then sail them to freighters lying offshore.

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UMI

P. TRIOU

ASTRIDE BEARERS, THREE BURMESE YOUTHS BEDECKED IN TRADITIONAL FINERY RIDE TO THE TEMPLE TO BECOME BUDDHIST PRIESTS

Their southeast Asia country has been offered independence by Great Britain, an action representative of many 1946 governmental changes (page 11).

Peru Taps New Oil Field East of Andes

THE PRODUCTION of petroleum in a new Peruvian field on the eastern slope of the Andes increases commercial interest in a remote region rich in mineral and plant resources. Peru's Montaña (the forested area east of the Andes crest) contains half that South American republic's 500,000 square miles, but only about four per cent of its population.

Peru's northern coastal desert has long yielded petroleum in large volume. In 1939 oil was discovered in the eastern forest area. In small amounts, this useful mineral was floated down the tributaries of the Amazon to Iquitos (illustration, page 6), and on to the Atlantic. This route is still the most practical outlet for shipments from the Montaña. A pipeline over the Andes is a dream of the future.

Amazon Flows by Different Names

Iquitos, capital of Peru's extensive Loreto Department and chief river port of the country's area of the Amazon basin, can be reached by ocean-going ships that draw up to 14 feet. It lies on the low, forested banks of the Amazon, more than 2,300 miles west from the Atlantic Ocean. Boats which draw less than nine feet can go 500 miles farther upstream. If the United States had a similar east-west waterway, freighters from New York could sail westward beyond Denver.

From Iquitos upstream to its source in a glacier-fed Andes lake in Peru, the river is known to Peruvians as the Marañon; from Iquitos to the Atlantic, as the Amazonas. To Brazilians, the stretch of river between Iquitos and the mouth of the Rio Negro is the Solimoes; for the winding miles (750 as the crow flies) from Manáos, at this largest tributary's mouth, to the sea, it is called the Amazonas.

For a Peruvian town, Iquitos is young. It is of white, not Indian, origin, and dates officially from 1863, though there was a small settlement there in the early years of the 19th century. The rubber boom of the early 1900's transformed the sleepy river village into a busy port. Before oil was added, the down-river shipments from Iquitos included such products of the Montaña as wild rubber, cotton, sugar, bananas, vanilla, coffee, tobacco, and waxes.

Rivers Are Highways to Montaña Indians

From Iquitos, a system of launches and small steamers navigating the Marañon, Ucayali, and Napo rivers carries produce and passengers to the towns and hamlets of the region. Only three or four roads traverse the crest of the Andes from the Pacific coast to these river-laced plains.

It is 1,000 miles from Iquitos west to Lima—by the Ucayali River south to Pucalpa, then over the Andes by a new motor-truck highway to the capital. An all-water route down the Amazon and through the Panama Canal adds up to 6,000 miles to cover an airline distance of 630 miles.

For the most part, the inhabitants of Peru's wild Montaña are Indians. They are distributed about one to every four square miles. They raise cattle, cotton, and tobacco, and use the rivers as highways for transporting their produce to market. Rafts are typical carriers of the

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Travancore's maharaja, who presides at official functions with all the traditional Indian pomp, including gorgeous raiment and an escort of state elephants, has pushed modern industrial development. Electricity has been extended to rural districts, bus service established, and factories built to turn out such assorted products as aluminum, sugar, chemicals, and textiles.

Travancore is outstanding for its high literacy rate, and its educational and social welfare facilities. In 1936 this dominantly Brahman land opened its Hindu temples to the "Untouchables." Christianity has existed in Travancore for at least 14 centuries. Nearly a third of the people are now Christians.

NOTE: Travancore may be located on the National Geographic Society's Map of India and Burma. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "India Mosaic" and "India's Treasure Helped the Allies," in the *National Geographic Magazine* for April, 1946; and "India—Yesterday, Today, and Tomorrow," October, 1943.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, April 15, 1946, "British Independence Offer Airs India's Complex Problems."

R. SINCLAIR

PALMS AND ATOMIC MATERIAL ARE PRODUCTS OF INDIA'S TROPICAL MALABAR COAST

The miles-wide black sand beaches of Travancore begin just south of this point. Thorium, an element related to uranium, is found in the sand. These boats carry copra, coir, and rice. Coir, a stiff fiber extracted from the coconut's outer husk, is woven into ropes and matting.

NATIONAL PARK SERIES: No. 14

Sequoia, Home of "Giants in the Earth"

THE glory of Sequoia National Park is its mammoth sequoia trees. These holdovers from the days when "there were giants in the earth" are really as misplaced in time in today's California landscape as a dinosaur would be.

There are two types of sequoia trees, or redwoods, in California. The coast redwood, perhaps more familiar, grows only on the Coast Range along the Pacific Ocean, mostly north of San Francisco. The giant sequoia is found only on the western slopes of the southern Sierras. Both have reddish wood, both are true giants. The coast redwood grows a little taller, but is not nearly so big around nor as long-lived.

"General Sherman" Is King among Trees

Both species are fugitives from the world's pre-Ice Age. The main botanical difference is that the giant sequoia reproduces from seeds, while the coast redwood sprouts from fallen or cut stumps. The Muir Woods National Monument and several California state parks preserve sections of the redwoods area; Sequoia, Kings Canyon, and Yosemite national parks contain giant sequoias.

The central attraction in Sequoia National Park is the General Sherman Tree, billed as the world's largest and probably oldest living thing (illustration, page 8). When this tree was a seedling, 3,500 to 4,000 years ago, European civilization had barely dawned. The Phoenician cities were emerging as Mediterranean trade centers. The Hebrews had not yet fled from their Egyptian captivity.

The General Sherman Tree stands 272 feet high and measures 36½ feet in diameter at the base. Its largest branch, nearly seven feet in diameter, joins the trunk at a height equivalent to a twelve-story building. Sawed into lumber, the tree would build about 40 five-room houses.

This tree is the largest in the Giant Forest, a gargantuan grove in the center of the park. Many other groves of these magnificent living monoliths grow in other areas of the park. The Room Tree has a cavernous room inside it. Auto Log is a huge fallen giant upon which an automobile may be driven. The Living Corpse exemplifies the great vitality of the sequoia. Only one-thirtieth of its bark remains, and the whole interior has been eaten away by fire, still the tree lives and sends out new branches.

National Geographic Society Provided Funds for Preserving Sequoias

Even fallen logs lie on the ground for centuries before decomposing. Tharp's Log named for Hale Tharp, who discovered Giant Forest in 1858, remains today almost exactly as it was when the pioneer fashioned a cabin in its hollow interior decades ago. John Muir, western naturalist-writer, stayed in the "noble den" in 1875.

Fire, the perennial enemy of the sequoia, has been a puny threat to the big trees compared with man. To preserve some of the giants, Sequoia National Park was set up in 1890. Its area was small, and Congress was asked to appropriate money to purchase adjoining sequoia groves. The appropriation was not large enough. The National Geographic Society,

Montaña as is the hardy, sure-footed llama of Peru's highland regions (illustration, cover).

Indian families often accompany the shipments on thatch-covered rafts. Some enormous rafts have carried as many as 17 families, housed in as many thatched cabins, besides a large supply of livestock and chickens. The Indians are skilled makers and operators of canoes from which they fish the well-stocked rivers.

In addition to the difficult mountain barrier which separates it from the metropolitan west of the country, much of this eastern part of Peru has a humid, unhealthful climate. Its forested plain, but 400 feet above sea level, is unhealthful because of poor drainage and high seasonal floods.

NOTE: The Montaña region of Peru may be located on the Society's Map of South America.

For additional information about Peru, see "Camels of the Clouds," in the May, 1946, issue of the *National Geographic Magazine;* "The Pith of Peru," August, 1942; "Incas: Empire Builders of the Andes," February, 1938; "Forgotten Valley of Peru," January, 1934; "Air Adventures in Peru," January, 1933; and "Lure of Lima, City of Kings" and "Among the Snows and Flowers of Peru" (25 color photographs), June, 1930.

W. L. SCHURZ

THE MONTAÑA'S TYPICAL THATCHED-ROOF CARGO RAFT CARRIES PERU'S OIL SEAWARD

Floating down the Amazon tributaries that lace Peru's Montaña, light rafts are the characteristic conveyance for passengers and freight. Light balsa logs, sometimes as much as 24 feet long, are tied together with tough fibers of climbing plants. In the center of the raft a platform about two feet above the water keeps passengers and cargo dry unless the raft is caught in a whirl of rapids. The raftsmen guide the craft with a long sweep worked from the tripod at the raft's bow and another on the opposite side. Because its frame of vine-bound timbers is flexible, such a raft can come safely through rapids that would batter to pieces a rigid canoe. The peaked, thatched roof gives shelter from the burning tropic sun and the heavy rains of this jungleland of eastern Peru.

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Isles of Scilly Supply Flowers for London

THE Isles of Scilly are blooming again with narcissi, daffodils, arum lilies, calendulas, and other flowers for London's winter markets. The rainbow-hued gardens were devoted to growing vegetables during the war, but are now back in "business as usual."

Under most favorable prewar conditions, these shoal-surrounded islands, 25 miles off England's southwest corner—Land's End—shipped about 85,000,000 individual blossoms a year (illustration, page 10). Ignoring climate zones, flowers bloom out of doors the year round in a latitude 650 miles north of New York City.

Gales May Spoil Blossoms

The warm Gulf Stream gives the islands an even temperature ranging from 46 to 58 degrees Fahrenheit. Starting plants outdoors in September and October, the islanders can supply London markets in December or early January by forcing blooms under glass.

Because of gales, the tenderest flowers have to be protected while growing by masses of purple-flowering veronica and tall hedges. The gales may send a salt spray to spot and blacken blossoms. They also may ruin cargoes by holding loaded ships in harbor until the flowers fade. Islanders complain that in March, their busiest month, there are "six weeks of bad weather."

Scillonians, who now number about 1,750, gradually turned florists some 60 years ago after a single hatbox filled with flowers was sent on trial basis to the London market. Before that time the islanders had supported themselves by farming, fishing, and more precarious means. Only five of the 140 islets and granite reefs are inhabited. St. Mary's, the largest island, supports the group's metropolis, Hugh Town, which has a population of 200.

Salvaging ships wrecked on the treacherous rocks and shoals was once the chief industry and source of wealth; now tourists have succeeded castaways. But tales are still told of how in the distant past wrecks might be encouraged by letting the warning coal fires on the tower of St. Agnes Island burn low.

Smuggling Was Once Profitable

Today powerful lighthouses encircle the islands, as did kelp fires in the past century. There is little danger to shipping except in heavy fogs. Crowning Bishop's Rock, England's westernmost outpost six and one-half miles southwest of Hugh Town, is a 160-foot lighthouse that cost more than a half-million dollars. Storm waves sometimes break the top windows of the beacon. During fogs charges of an explosive are regularly set off.

In the 18th century many Scillonians profited from a smuggling business in contraband liquors and tobacco from France, using the island caves and cellars for storage. Reminders of smuggling days are found in some old stone houses which were private hide-outs.

Still earlier the caves stored the loot of 16th-century pirates who preyed on coastal towns and shipping on the Irish Sea, as did the seafaring

from its own funds and with voluntary contributions from individual members, provided the difference.

All told, the Society bought from private owners and gave to the public nearly 2,000 acres filled with cathedral-like stands of sequoias. The cost was $96,330.

Highways reach most of the popular points of interest in the lower reaches of the park. The sequoias do not grow above 8,500 feet elevation. East of their limits stretches a huge wilderness area, still within the park, which extends to the very crest of the Sierra Nevada. Trails lace the region. Mt. Whitney, highest point in the United States (14,495 feet), caps the eastern park boundary.

Sequoia is open all year. One of the two automobile entrances is closed by snow in winter. Giant Forest Winter Lodge remains open all year; the others close. Long, almost rainless summers and the restful, wilderness atmosphere of the park make it a pleasant place for camping. Hundreds of prepared campsites are dotted under the sequoias.

NOTE: Sequoia National Park may be located on the National Geographic Society's Map of The Southwestern United States.

See also, "California's Coastal Redwood Realm," in the *National Geographic Magazine* for February, 1939; "Among the Big Trees of California," August, 1934; "Western National Parks Invite America Out of Doors," July, 1934; "National Geographic Society Completes Its Gifts of Big Trees," July, 1921; "Saving the Redwoods," June, 1920; and "Oldest Living Thing" (General Sherman Tree), print, available framed or unframed (included on price list of maps).

C. O. SCHNEIDER

PERSONS AT THE SHERMAN SEQUOIA RESEMBLE PYGMIES BESIDE A HUGE ELEPHANT'S FOOT

Government Changes Made '46 Transition Year

PEACE treaties were drafted, kings were ousted and recalled, old empire ties were loosened, trusteeships were established, and new independent governments set up—these and other events in 1946 brought change and transition to the world.

In Europe, agreements were reached on peace treaties for Italy, Hungary, Romania, Bulgaria, and Finland. Several boundary revisions were involved. Along the "powder-keg" border between Italy and Yugoslavia, draft-treaty terms awarded Yugoslavia most of the Istrian Peninsula with the former Italian city of Trieste to be made a "Free Territory" under United Nations' authority.

Romania Regains Transylvania

Italy also loses to France small sections along their Alpine frontier, and to Greece, the Dodecanese Islands of the eastern Mediteranean. The Italians, however, are to keep the South Tyrol area, claimed by Austria, while final decision on their African colonies has been postponed to next year.

Hungary gives up to Czechoslovakia a bit of borderland around Bratislava, and in the northeast loses to Romania the long-contested region of Transylvania (illustration, page 12), a temporary gift from the Axis to Hungary in 1940. Romania, in turn, leaves with Bulgaria the South Dobruja area along the lower Danube, and confirms possession by the Soviet Union of fertile Bessarabia and Bucovina.

To the Russians also go Finland's far north territory and ice-free port of Petsamo, as well as a 50-year lease on Porkkala Udd, a peninsula on the Gulf of Finland.

In the juggling of royalty, Europe saw the abdication of Victor Emmanuel of Italy, followed by the establishment of an Italian republic. King George II of Greece returned to his throne. But Bulgaria, Albania, and Hungary voted to replace their former monarchies by republics.

League Mandates Become UN Trusteeships

On the other side of the world, Japan—reduced to its home islands—experienced a government upheaval. Under direction of the Supreme Commander for the Allied Powers, the Japanese emperor was shorn of power and the nation's constitution revised along Western lines. In a general election women voted for the first time.

Transfers to United Nations trusteeships were approved for eight former League-of-Nations mandates: the Australian-held territory in New Guinea; New Zealand's in Western Samoa; the four African mandates of Togoland (divided between France and Britain), the British Cameroons, and French Cameroun; the British-controlled area of Tanganyika; and Belgium's Ruanda Urundi.

The Philippines became completely free on July 4. Two Indonesian republics were outlined, and a third planned, in setting up the United States of Indonesia, a new country designed to take the place of the Netherlands Indies.

Danes before them, when the islands offered seclusion to Benedictine monks from France.

NOTE: The Scilly Isles are shown on the National Geographic Society's Map of the British Isles.

For additional information, see "The Garden Isles of Scilly," in the *National Geographic Magazine* for December, 1938.

MAYNARD OWEN WILLIAMS

BRYHER'S BLOOMS START ON THEIR COMPLICATED JOURNEY TO LONDON'S FLOWER MARKET

From this smallest of the inhabited Isles of Scilly, the boxed blossoms go by boat to near-by St. Mary's Island. There they are put aboard a steamer for Penzance, nearest British mainland port. From the dock, trucks take them to the railroad for their last lap to the British capital.

HONEY OUTPUT CONTINUES HIGH TO SUPPLEMENT SUGAR STOCKS

FLOWERS bloom and bees buzz and large stocks of honey accumulate to help relieve the sugar shortage. The extent to which honey has substituted for sugar was shown by the wartime increase of honey imports into the United States.

Before the war the United States was a honey-exporting country. While it imported about a quarter of a million pounds in 1939, it shipped ten times that amount. The next year, however, imports nearly doubled. They continued to increase until they reached a peak of more than 36,000,000 pounds in 1943. At the same time, production of honey in the United States was multiplying.

Honey has long been used as a sweetener by bakers and confectioners, because it not only imparts flavor but helps preserve foodstuffs. Flavor depends on the flowers yielding the nectar. White clover honey is commonly accepted as a standard, but in the West, sage and alfalfa honeys are favorites, and many Californians prefer orange honey. In Guatemala, coffee blossoms produce a distinctive flavor.

Beekeepers emphasize the value of bees in pollinating fruit trees, grapes, and other plants. Bees also contribute beeswax, used in making ointments, cold creams, and nail polishes, and employed for wood finishing and candlemaking. During the war beeswax waterproofed ammunition and planes and insulated electric coils.

The British offered full independence to India, although conflicting Hindu and Moslem groups failed to reach accord on a united government. Burma (illustration, page 2) also was offered freedom on the same terms.

In the Middle East, the British mandate government made way for a new sovereign Arab state, Trans-Jordan, whose ruling prince was promoted to regal rank.

Britain annexed as a crown colony the "White Rajah" state of Sarawak on the northwest coast of Borneo. Northern Borneo also changed status within the empire—from government by the last of the royal chartered companies to that of a British crown colony.

French Indochina experienced serious uprisings as the native republics of Viet Nam and Cochin China were given limited recognition by France. Along the western border of the country, Siam restored to France small Indochina areas of Cambodia and Laos which, under Japanese pressure, the Vichy government had transferred to Siam in 1941.

Deep inside southwest Asia, another small but potentially important frontier was affected by an agreement under which Afghanistan gave up all claim to the Kushka district of the Turkmen Soviet Republic in return for certain river rights and border adjustments.

NOTE: Areas affected by government changes during 1946 may be located on the Society's Map of the World.

For additional information on postwar changes, see, in the GEOGRAPHIC SCHOOL BULLETINS, February 4, 1946, "Postwar Adjustments Set Pattern for 1945 Government Changes."

ERDELYI

FEW WINDOWS AND NO DOORS FACING THE STREET FEATURE THESE TRANSYLVANIA HOMES

Doors and gates lead into boarded side yards, leaving house fronts flush with the street. A history of border fights and sudden conquest may account for these fortlike homes in the part of Romania near the Transylvanian Alps. A 1946 treaty confirmed Romanian possession of this district.